IDAHO BUREAU OF LABORATORIES

IDAHO DEPARTMENT OF HEALTH & WELFARE

LABORATORY CONNECTIONS

Volume III 2004

IBL BENCH PERSPECTIVE

In This Issue:

West Nile Virus Arrives

As expected, West Nile Virus (WNV) officially entered the state of Idaho this summer. Surveillance for West Nile Virus involved many state agencies working together, including the Department of Agriculture, which tested horses; the Department of Fish and Game, which prepared the raptors for testing; and the Idaho Bureau of Laboratories which performed PCR testing on mosquito pools, corvids and raptors. Our first positive was detected in a magpie submitted from Gooding County on August 23rd. Five more corvids, from Elmore, Canyon, Ada and Washington counties, have also tested positive.

The IBL performs assays for the detection of antibodies for WNV in humans. IgM tests can be performed on serum and CSF and IgG on serum only. Testing is available at private laboratories; however, we encourage physicians to submit specimens for patients exhibiting neurological symptoms to the IBL. PCR testing on humans is not recommended because antigen levels have dropped by the time symptoms appear.

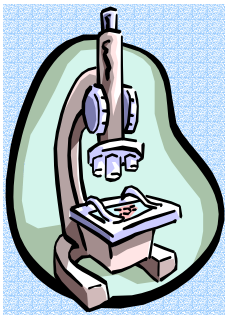
Tuberculosis Declines

Idaho ranks 48th in the nation for tuberculosis. In 2003, CDC reported a total of 14, 871 TB cases in the U.S. The number of cases continues to decline with Idaho ranking 48th in the nation for cases rates (cases per 100,000). The District of Columbia and Hawaii have the distinction of having the highest rates, while Wyoming and North Dakota take the honors for having the lowest. The majority of cases continue to be in foreign born people.

IBL recently signed up to participate in the National Universal Genotyping service for *Mycobacterium tuberculosis* isolates. The goal of this program is to rapidly fingerprint all TB isolates in the U.S. using automated high thru-put genetic analysis. Using this data, epidemiologists will be better able to identify new outbreaks, track multi-state or multi-national outbreaks, and recognize new genetic variants of the organism. IBL will send all TB isolates, including the two identified during the past three months, to the State of California's Microbial Diseases Laboratory for testing as part of the U. S. Public Health Service's national Tuberculosis Elimination Program.

Micro Notes

- The summer lived up to its name as the Season of Gastroenteritis. Salmonella serotyping completed at IBL doubled from the same period last year, including Liverpool, a serotype not previously identified in Idaho. Shigella was also a visitor to Idaho, if only sporadically, with serotypes flexneri Type I and II, and sonnei being identified. Shiga toxin producing E. coli took second place as the most popular source of gastroenteritis with 13 new cases, including three non-0157: H7.
- *Francisella tularenis* was identified in two separate cases during the first part of September.
- *Bordetella pertussis* has again made an appearance in Idaho.



House Molds: To Test or Not to Test? That is the Question

Poor ventilation, leaking roofs, defective or leaking water pipes, poor drainage, fires, floods, the increasing use of wood composite building materials and the building trend toward super tight energy efficient houses have molds "literally eating us out of house and home."

When IBL receives inquiries from the public regarding the testing for mold growth in homes we first discuss the situation with the client reminding them excessive moisture is the source of mold problems. In most cases, the source of moisture is known and remediation is the next step. Testing is generally *NOT* recommended because of its limited value. Clients are cautioned to minimize personal exposure during the mold clean up and are referred to www.epa.gov/iaq/molds/moldguide.html or the EPA guide, "A Brief Guide to Mold, Moisture and Your Home" [EPA 402-k–02-003] for methods of safe clean up. Residents can clean up an areas of less than 10 square feet themselves. If the contaminated area is larger, professional remediation should be sought.

IBL will test material from a home at the request of a physician, the Health District, or after consultation with this laboratory. Carpeting, wood molding, insulation, drywall, swabs from physical surfaces may be cultured. Ambient air plates may also be exposed. The initial screening fee for such testing is $45 for up to three samples and takes approximately 10 days for a preliminary finding. The report will list the dominant molds present and the amount of growth. *Stachybotrys* has been covered by the media but it is only one of many molds which are of concern.

A physician should be consulted immediately if mold intoxication is suspected.

Possible health effects from high concentrations of mold

- Molds can cause irritation directly to the mucous membrane surfaces.
- Molds can cause allergic and hypersensitivity reactions in susceptible people ranging from mild hay fever to potentially fatal conditions such as asthma and farmer's lung.
- Mold can cause infectious diseases in susceptible people.
- Some mold may produce mycotoxins which have been shown in purified form to produce systemic damage to liver, brain, kidneys, immune system and cancer in laboratory animals under standard toxicological testing. The effect of mycotoxins produced by house molds on human health is unknown and unproven. However, overwhelming anecdotal evidence of the harmful effects of mycotoxins exists.

Reminder

As autumn approaches, the IBL would once again like to encourage the medical community to be part of Influenza Surveillance by submitting respiratory specimens for culture isolation and subtyping. These antigenic studies are necessary for identification of circulating strains, monitoring changes in the viruses for vaccine composition decisions, and for tracking the emergence of new, potentially deadly pandemic strains.

Trivalent Influenza vaccine 2004-05 Season

* A/Fujian/411/2002(H3N2)-like
* A/New Caledonia/20/99 (H1N1)-like
* B/Shanghai/361/2002-like

Emerging Select Agent – **Avian Influenza A (H5N1)**

Vigilance in the clinical setting for avian influenza (H5N1) requires healthcare providers consistently obtain international travel and other exposure risk information for persons who have specified respiratory symptoms.

Testing for avian influenza A (H5N1) should be considered on a case-by-case basis in consultation with state and local health departments for hospitalized or ambulatory patients with:

- Documented temperature of> 38°C (>100.4°F), ***and***
- One or more of the following: cough, sore throat, shortness of breath, ***and***
- History of contact with poultry (e.g., visited a poultry farm, a household raising poultry, or a bird market) or a known or suspected human case of influenza A (H5N1) in an H5N1-affected country within ten days of symptom onset.

If a suspect patient is identified and testing is recommended send specimens to IBL and we will then forward them to CDC for PCR testing.

Influenza A (H5N1) is classified as a select agent and can only be tested under Biosafety Level 3+ laboratory conditions. No lab should set up a viral culture for patients suspected of having H5N1. Clinical specimens may be tested using the rapid influenza kits using BSL 2 work practices. But because the sensitivity of commercially available rapid diagnostic tests may not always be optimal, you would forward both positive and negative specimens for all cases that meet the clinical criteria for H5N1.

For complete recommendations and updates about Avian Influenza go to www.cdc.gov/flu/

Laboratory Response to Suspected Case of Pneumonic Plague

Specimens	Testing	Specimen Handling
Respiratory — secretions Pharyngeal swabs Tracheal washes or aspirates Trans-thoracic lung aspirates Pleural fluid collections	Staining Culture DNA amplification	Sterile screw-capped containers Room temperature Store the specimens between 2°C -8°C if it is known the material will be transported within 2 to 24 hours after collection.
Blood (Two or more sequential samples) Baseline before antibiotics *	Culture	Ship directly to lab at room temperature. Hold at ambient temperature until placed onto blood culture instrument or incubated. Do not refrigerate.
Tissues (biopsy) Lung tissue Lymph node tissue Spleen Liver	Culture Gram Stain	Sterile container. For small samples add 1 to 2 drops normal saline to keep specimen moist. Transport at room temperature for immediate process-
Tissues Autopsy (same as above plus) Skin lesions Kidney	Specimens should be fresh-frozen, and unpreserved Culture — PCR	Split into non-glass containers. Hold one set at 4°C for live recovery. The other set should be frozen at - 20°C or at –70°C for rapid molecular testing. Formalin-fixed tissue is suitable for histopathology, immunohistochemisty and PCR. Do not freeze. **

* Convalescent serums collected at least 14 days apart, preferably 3 to 4 weeks after symptom onset. Plasma and whole blood dried on filter paper are acceptable alternatives to serum.

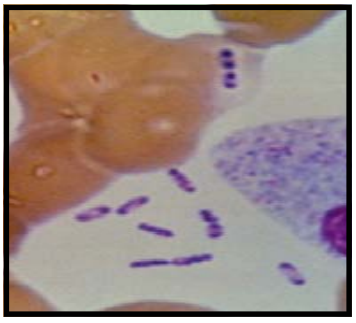
** Formalin-fixed specimens must be packaged separately from unpreserved autopsy specimens.

Suspect Case of Pneumonic Plague Laboratory Findings

Microbiological Test Results	Consistent with systemic inflammatory response syndrome
♦ Small, gram-negative plump rods which stain bipolar ♦ Single or in short chains ♦ Catalase positive (+) ♦ Oxidase and urease negative (-)	♦ Leukocyte count — elevated ♦ WBC's 15,000-25,000/µl, left shift ♦ Differential, neutrophils predominant with immature forms ♦ Coagulations abnormalities ♦ Platelets may be normal or low ♦ Bilirubin and transaminases elevated

Cannot rule Out *Yersinia pestis:*

Clinical symptoms and exposure compatible with pneumonic plague *and* meets microbiological criteria listed above. Contact the Idaho Bureau of Laboratories, the reference laboratory for the State of Idaho, for further directions.



Safety pin appearance of Yersinia pestis .

This information was compiled from the CDC training module at

http://www.bt.cdc.gov/agent/plague/trainingmodule/index.asp

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"PROTECTING THE HEALTH AND ENVIRONMENT OF THE PEOPLE OF IDAHO THROUGH TESTING AND RESEARCH"

Check out the new Web site www.healthandwelfare.idaho.gov select Health and scroll down to labs for prior issues of Laboratory Connections and up- to- date information regarding West Nile Virus.

Want to participate in the Influenza surveillance?

For additional information, contact the Virology/Serology section at 208-334-2235. Respiratory specimens can be submitted to the IBL in any viral transport media, or we can provide collection kits. Specimens are shipped cool, never frozen. There is no charge for the kit or for this testing. You will be contributing to the efficacy of next year's vaccine.

Costs associated with this publication are available from the Idaho Department of Health and Welfare. IDHW-600-14015-7/95. Cost per unit $2.60